

# **Borealis Battery Energy Storage Project**

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## **Project Description/Proposal Statement**

## **PROJECT DESCRIPTION**

### **PROJECT OVERVIEW**

Borealis ESS, LLC (Applicant) plans to construct, own and operate the Borealis Energy Storage Project (Project), a lithium-ion battery energy storage facility capable of storing and delivering approximately 300 megawatts (MW) of electric energy and associated ancillary services into the California electric grid. The Project will be comprised of lithium-ion battery modules installed in racks housed in purpose-built outdoor Battery Energy Storage System (BESS) enclosures, associated equipment, a project substation, and an approximately 0.5-mile generation tie-line (gen-tie) connecting the Project to the adjacent existing Pacific Gas & Electric (PG&E) Lakeville Substation. The Project will provide important electric grid reliability services to Sonoma County and the greater North Bay region and will help mitigate the impacts of Public Safety Power Shutoffs (PSPS) by PG&E in the local area. The Project is an essential element to California's plan for a clean energy future and a zero-carbon electricity supply by 2045.

The Project will be sited on an approximately 17-acre leasehold within a larger 137.52-acre parcel at 3571 Old Adobe Road, in unincorporated Sonoma County, California. The Project will interconnect to the PG&E 115-kilovolt (kV) Lakeville Substation located south and across Old Adobe Road from the Project site via a new approximately 0.5-mile, overhead gen-tie. The Project's batteries will be charged from the California Independent System Operator (CAISO) grid via the Project's interconnection to the Lakeville Substation. Energy stored in the Project's battery modules will then be discharged back into the grid when the energy is needed, providing important electrical reliability services to the local area and helping integrate renewable energy into the grid.

The Project will be monitored and operated remotely 24/7 from an off-site control center with no permanent on-site operations and maintenance personnel. The Project will include a small onsite operations office and storage enclosure, equipped with restroom facilities for temporary operations and maintenance (O&M) personnel use. Operating personnel, typically in crews of two to four staff members, will visit the site bi-weekly and as needed for project maintenance. The BESS facility will be fully fenced and will not be open to the public.

### **PROJECT PURPOSE AND NEED**

The Project purpose is to provide grid reliability and resiliency services to the local region and to help integrate renewable energy into the grid. The Project, with its interconnection to PG&E's 115kV Lakeville Substation, is strategically located at one of the most important substations in Northern California and the single most important substation in Sonoma County. When you flip a light switch in Sonoma County and the North Bay, your power is likely coming from the Lakeville substation. The Lakeville Substation is a hub for the local electric system that serves as the middle-man between the high voltage transmission lines that bring power supplies from other regions of California and the west and the low voltage distribution lines that deliver energy to our homes and local communities. By locating the Project at the Lakeville substation, the Project can most effectively deliver its reliability services and benefits to our homes.

As described above, the Project will provide utility services to the public and will be certified by the CAISO as a Non-Generator Resource (NGR). NGR's provide utility grid resiliency services and have the capability to serve as both generation and load and can be dispatched to any operating level within their entire capacity range. This operating flexibility makes battery storage a uniquely flexible and effective resource for balancing the CAISO grid. Importantly, the CAISO can take control of any resource within the CAISO system, including registered battery storage resources like the Project, and deploy those resources as needed in order to ensure grid reliability. The Project and the Lakeville Substation are located within what the CAISO defines as the "North Coast-North Bay Local Reliability Area" (NCNB LRA), which encompasses Sonoma, Marin and other Northern California counties. At this

location, the Project will provide services that improve local grid reliability and resiliency for Sonoma County residences. In doing so, the Project will also contribute to CAISO's efforts to minimize and mitigate the impacts of PSPS events that frequently impact the greater North Bay region. Battery energy storage projects compliment renewable energy supplies and help maximize the efficiency of those renewable energy investments we have already made throughout the State. The Project does this by charging its batteries typically in the middle of the day when solar and wind energy supplies are abundant and often in surplus, and then discharging that energy supply back to our communities when the renewable energy supply is not available or in short supply, typically in the evenings, just as our demand for energy spikes as we return home from the workday.

Battery storage projects are essential for California to provide reliable energy supplies and meet its goal of a zero-carbon future by 2045. Replacing fossil fuel-based power generation with power generation from wind and solar resources is a key strategy for decarbonizing electricity. Storage enables electricity systems to remain in balance despite variations in wind and solar availability, allowing for cost-effective deep decarbonization while maintaining reliability. California's need for additional battery storage and renewable energy supply is immediate. While California has been successful in bringing over 3,000 MW of battery storage on-line to date, California requires an additional 11,000 MW of new energy resources by 2025 to maintain grid reliability. Of that 11,000 MW, 4,800 MW must come from battery storage. Furthermore, to address California's medium-term needs, in February 2022, the California Public Utilities Commission approved a \$49 billion Clean Energy Plan that requires load serving entities to procure approximately 25,000 MW of renewable energy supply and approximately 15,000 MW of new battery storage by 2032 in order to advance California's grid reliability and zero-carbon future goals<sup>1</sup>. To reach our goal of a zero-carbon future by 2045, experts estimate that California will need 40,000 – 50,000 MW of energy storage of one technology or another.

A summary of key Project benefits includes:

- Maximize renewable energy use by storing the energy during off-peak times when renewable energy supply is abundant for re-distribution during peak demand when renewable supplies are off-line
- Support and optimize existing and future renewable energy generation investments and California's goal of a zero-carbon future
- Offset the need for additional electricity generated from fossil fuels, and thereby assist the state in meeting its air quality goals and reducing greenhouse gas emissions
- Provide back-up power during power outages and help mitigate and minimize PSPS events in the North Bay region
- Supply up to 300 MW of reliable energy services to the region, enough electricity to supply approximately 240,000 homes for a 4-hour duration, 120,000 homes for an 8-hour duration, or 80,000 homes for a 16-hour duration
- Reduce dependence on costly, high-fire risk transmission infrastructure by placing electric energy supplies close to the communities they serve
- Reduce power bills by lowering peak power demand charges
- Contribute to national security by reducing California's reliance on foreign oil
- Provide Sonoma County and the local economy significant economic benefits via construction jobs and the ancillary economic stimulus associated with the construction and operations of the Project
- Provide Sonoma County with additional property tax revenues associated with the Project investment

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<sup>1</sup> Source: California Public Utilities Commission approves US\$49 billion clean energy plan - Energy Storage News (energy-storage news), <https://www.energy-storage.news/california-public-utilities-commission-approves-us49-billion-clean-energy-plan/>

- Increase local short-term and long-term employment opportunities

## **PROJECT SITE AND LOCATION**

The Project is proposed to be located on an approximately 17-acre Project site, part of a larger 137.52-acre parcel (APN 017-130-008) located at 3571 Old Adobe Road, in unincorporated Sonoma County, California, 95954 (Property). The Project site and the surrounding area is dominated by major high voltage transmission lines and PG&E's Lakeville Substation. High voltage transmission lines run adjacent to the Project site and its access road. The site is not currently being cultivated but was planted in 2021 with pumpkins and potatoes. Because it has been used for agricultural production of row crops, it is heavily disturbed and contains little to no native vegetation. There are no structures currently on the Project site. There are no protected, heritage, landmark, or valley oaks trees, or riparian vegetation located on the Project site. No protected, heritage, landmark or valley oak trees nor any riparian vegetation will be removed or impacted by the Project during construction or operations.

The Project site is located on the western portion of the parcel in an area of the Property that the landowner identifies as under-utilized and less productive for crop cultivation. Approximately 10 acres of the 17-acre Project site will be the fenced area that will include the energy storage equipment and structures and approximately 1 acre will be the separately fenced Project substation facilities, with the balance of the acreage utilized for grading, drainage, access and transmission corridors, and temporary construction use. The Applicant has executed a long-term lease agreement for the Project site with the owner, Oxfoot Associates, LLC (Oxfoot), also locally known as "Green String Farm." The lease of the 17-acre Project site is not subject to the Subdivision Map Act pursuant to Government Code section 66412(n). That section, signed into law by the Governor on August 29, 2022, excludes from the Act "the leasing of, or the granting of an easement to, a parcel of land, or any portion or portions thereof, in conjunction with the financing, erection, and sale or lease of an electrical energy storage system on the land, if the project is subject to discretionary action by the advisory agency or legislative body." Here, the proposed Project would be subject to the County's discretionary review through the issuance of a conditional use permit. Oxfoot will continue to operate the farm on the remainder of the 137.52-acre Property. The Project will not impede the ongoing use of the remainder of the Property for agricultural production.

The approximate Project site centroid is 38.257°N, -122.580°W on the Glen Ellen U.S. Geological Survey (USGS) 7.5-minute quadrangle. The site is generally flat with a gentle slope towards the south toward Old Adobe Road. The Project site is bounded by Old Adobe Road and PG&E's Lakeville Substation to the south, the property owner's farm on the remainder of Property to the south, north and east, Petaluma Adobe State Historic Park to the southwest, and Adobe Creek and private residences to the west. Project site access will be from Old Adobe Road via an existing farm road that would be shared by the Project and the farm. The existing farm road will be improved to meet applicable building and fire safety design standards for site access. A new driveway with a staging and turn-around area and gate will be extended from the existing farm access road to serve the Project site. The distance to the nearest private residence is approximately 620 feet west of the Project site. The Project design will maintain the existing drainage patterns and limit runoff to less than or equal to the existing discharge rate.

The Project site is not encumbered by any agricultural, open space or conservation easements, Williamson Act contracts, nor any other title limitations that might restrict or prohibit the use of the site for the Project. A 200-foot building setback from Old Adobe Road is shown on title documents at the location of the site entrance. In addition, there are two PG&E utility (gas) rights-of-way running through the Project site. Crossing permits will be obtained from the associated utilities prior to construction. Both rights-of-way and the overlapping building setback corridor are located within the area which will be utilized for site access and transmission infrastructure only.

## CONSISTENCY WITH LOCAL LAND USE AND ZONING POLICIES

The Project site is in unincorporated Sonoma County, outside the sphere of influence of the City of Petaluma. Surrounding areas are generally characterized by agricultural land, low density residential parcels, open space (the former Adobe Creek Golf Club), Old Adobe State Historic Park, and local roadways. The Project site makes up a portion of a larger parcel (APN 017-130-008) which has a Sonoma County General Plan land use designation of Land Extensive Agriculture (LEA) within the B6 70 combining district. Sonoma County's zoning code (Section 26-06-030) allows public utility facilities (i.e., electricity generating facility, electric substation, and similar facilities) providing a facility service to the general public in the LEA zone with a Conditional Use Permit (CUP).

Sonoma Mountain Area Plan: The Project parcel falls within the study district of the Sonoma Mountain Area Plan (SMAP), which was adopted in 1978 and most recently modified by resolution in October 2012. The major land uses in the area addressed by the SMAP include dairying, grazing, forage crop production, and residential.<sup>2</sup> The SMAP encourages cluster development that preserves the most "farmable" section of the property as the residual parcel. The Project will be designed, constructed, and operated consistent with the goals and policies of the SMAP. For example, as directed by the SMAP, the Project will comply with the standards and policies of the General Plan Noise Element for noise related constraints and mitigation measures; work with local fire departments for design input; protect historic sites and archaeologically sensitive areas; and comply with the standards and policies of the General Plan Open Space Element relative to scenic resources and riparian corridors. Although the Project is located adjacent to the Petaluma Adobe Historic State Park and approximately 800 feet from the Petaluma Adobe California Historic Landmark (Landmark), the Project will have no adverse impact on the Landmark as a cultural resource. Specifically, the Project will not be visible or audible from any part of the Landmark due to its distance from the proposed Project and a thickly vegetated screen along the Adobe Creek that lies north and east and between the Landmark and the Project. In addition, approximately 800 feet of open space separates the Landmark from the Project site. Moreover, the area immediately to west and southwest of the Landmark, which is predominantly visible from the Landmark, is open grazing land as identified in the SMAP. The Project is consistent with the policy that the immediate vicinity of the Landmark should be recognized as sensitive to the integrity of the monument. A detailed analysis of the consistency of the Project with the SMAP's policy regarding the Landmark is provided in Appendix A.

The Project parcel also coincides with several combining district overlay zones including Floodplain (F2), Local Guidelines/Taylor/Sonoma/Mayacamas Mountains (LG/MTN), Riparian Corridor (RC), Scenic Resources (SR), and Valley Oak Habitat (VOH). As further detailed below, none of these overlay zones are anticipated to conflict with the development of the proposed battery storage facility at the Project site.

F2 Overlay (Section 26-58-010): The Project will be constructed outside FEMA's 100-year flood hazard area which corresponds with Adobe Creek and will not encroach on any flood waters; therefore, the requirements of FEMA's National Flood Insurance Program and the provisions of the F2 zone do not apply to the Project.

LG/MTN Overlay (Section 26-90-120): Development standards for the LG/MTN zone relate to visual impacts of residential related uses within scenic landscape units as visible from public roads. Since the Project will not involve residential development, the provisions of the LG/MTN zone do not apply to the Project.

RC Overlay (Section 26-65-040): The Project will be constructed outside the riparian corridor associated with Adobe

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<sup>2</sup> Source: 1978 Sonoma Mountain Area Plan, accessed online at: [https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Pre-2022/Planning/ Documents/sonoma\\_mtn\\_area\\_plan.pdf](https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Pre-2022/Planning/Documents/sonoma_mtn_area_plan.pdf)

Creek and also will not encroach upon the associated 50-foot upland setback required by the zoning code. Additionally, consistent with publicly available databases including National Wetland Inventory (NWI) and Sonoma County’s Online Land Use and Zoning Mapper, and as verified by a wetland biologist during an aquatic resources delineation, riparian habitat is absent from the Project site. Therefore, since the Project site does not support riparian habitat and the proposed facility will be constructed well away from Adobe Creek, the provisions of the RC zone do not apply to the Project.

SR Overlay (Section 26-64-030): The Project is adjacent to Adobe Road, a designated scenic corridor. Within a scenic corridor, the zoning code states that all structures are subject to setbacks of 30% of the depth of the lot to a maximum of 200 feet from the centerline of the road. Since the proposed facility will be sited greater than 200 feet from the centerline of Adobe Road, the provisions of the SR zone do not apply to the Project.

VOH Overlay (Section 26-67-030): The purpose of the VOH zone is to protect and enhance valley oaks and valley oak woodland. If oak trees are removed, the zoning code identifies appropriate mitigation that must occur. Based on an onsite habitat assessment, there are no valley oak trees or valley oak woodland within the Project site. Therefore, the provisions of the VOH overlay do not apply to the Project.

**Compliance with Development Standards of LEA Zone—Table 6-2, Section 26-06-040**

Required (Proposed) Front Setback	Required (Proposed) Side Setback	Required (Proposed) Rear Setback	Required (Proposed) Lot Coverage	Required (Proposed) Height Limit
30’ (approx. 150’)	10’ (approx. 100’)	20’ (approx. 110’)	5% (up to 5%)	50 (approx. 30’)*

\*Excludes transmission tower and static mast structures and related wires approximately 100’ in height

Minimum setbacks from property lines for LEA zoning are 30 feet on the southwest (front), 20 feet on the northeast (rear), and 10 feet on the southeast and northwest (sides). The location of Project structures and equipment exceeds these setback distances in all instances. Lot coverage for the Project will not exceed the 5% lot coverage threshold for the property. It is anticipated Sonoma County would approve the Project with a CUP as a public utility facility consistent with the municipal code.

**FACILITIES DESCRIPTION**

The Project will be capable of charging and discharging approximately 300 MW of electricity supply and grid ancillary services<sup>3</sup> for a 4-hour duration or longer. The major components of the Project are described below with additional detail provided in Table 1. Project battery and equipment suppliers will not be selected until after the

<sup>3</sup> Ancillary services refer to specific functions that help grid operators like the CAISO maintain a reliable electricity system. Ancillary services maintain the proper flow and direction of electricity, address imbalances between supply and demand, and help the system recover after a power system event. Storage facilities provide two particularly important Ancillary Services in Regulation Reserves and Spinning Reserves.

- 1) **Regulation Reserves**: Reserved capacity provided by storage facilities or generating resources that are running and synchronized with the CAISO controlled grid, so that the operating levels can be increased (incremented) or decreased (decremented) instantly to allow continuous balance between electricity supplies and demand.
- 2) **Spinning Reserves**: Reserved capacity provided by storage facilities and generating resources that are running (i.e., “spinning”) with additional capacity that is capable of ramping over a specified range within 10 minutes and running for at least two hours. The CAISO needs Spinning Reserve to maintain system frequency stability during emergency operating conditions and unanticipated variations in load.

Project is entitled and the Project equipment's exact dimensions, specifications and site layout will depend on the technology selected. As such, the Project design assumptions provided herein are intended to establish the maximum Project site footprint and environmental impacts which will allow for flexibility in final Project manufacturer selection, design, specifications, and equipment layout. Project equipment, design and the layout selected will be permitted, constructed and operated pursuant to applicable federal, state and local codes and regulations.

Battery Enclosures: The Project will be comprised of lithium-based battery modules installed in racks and housed within purpose-built outdoor enclosures. A typical battery enclosure will house hundreds of battery modules where each enclosure is typically capable of storing between 0.4 to 5 megawatt hours (MWh) of energy.

Each individual module within an enclosure is monitored and controlled to ensure safe and efficient operations, and every enclosure is equipped with integrated operational management systems and fire and safety systems such as heating ventilation and cooling (HVAC), gas, heat and smoke detection and alarms to ensure safe and efficient operations. The Project and its systems will be designed, constructed, and operated pursuant to the current California and local building code and California Fire Code requirements. The modules within each enclosure are accessed for maintenance from the outside via cabinet doors.

The dimensions of a typical BESS enclosure vary between manufacturers and are arranged in repeated "blocks" across the site. System blocks may consist of a single enclosure, or several smaller enclosures set side-by-side to create banks of batteries with similar overall dimensions. Smaller enclosures are typically closely spaced or physically attached at the time to construction, and larger enclosures are placed in smaller groupings or individually. An enclosure grouping typically consist of 4 to 12 enclosures measuring approximately 30 feet long by 6 feet wide with a height of 10 feet. Smaller enclosures may be as small as 3.5 feet long by 5 feet wide by 8 feet tall while larger enclosures may measure over 50 feet long by 12 feet wide with a height of up to 20 feet. However, the number, size, layout, and capabilities of each enclosure will vary depending on the battery, enclosure manufacturer design, and BESS system manufacturer(s) selected for the Project. Regardless of the system manufacturer, the Project's developed footprint and overall capability will remain substantially the same. In some instances, the battery enclosures may contain inverters which convert low voltage direct current (DC) to alternating current (AC) (and vice-versa when charging).

Power Conversion System (PCS): Low voltage DC cables will connect the battery enclosures to low profile, pad-mounted PCS inverter-transformers located adjacent to each enclosure. Inverters within the PCS convert electricity from low voltage DC to low voltage AC when power is being taken (discharged) from the battery into the grid. The opposite occurs when charging the battery from the grid. A medium voltage transformer within the PCS is used to convert the low voltage AC current to medium voltage AC current and vice versa.

Medium Voltage (MV) Transformers: As stated above, in some instances the inverter is contained within the battery enclosures and a stand-alone transformer is used instead of a PCS. In this instance, the MV Transformer equipment is connected directly to the battery enclosures via low-voltage AC wiring.

Outdoor Electrical Equipment: MV transformers and other additional electrical equipment such as electrical cabinets and panels will be installed outside the BESS enclosures within the Facility site. This equipment is smaller in size than the equipment listed above and is distributed through the site as needed based on the design parameters of the battery and power conversion equipment chosen. In addition, buried cable will be placed throughout the site to connect power and communications to individual components and to the Project Substation. All outside electrical equipment will be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures.



Project Substation: The Project's onsite substation will be a secure, separately fenced (chain link security fencing) area where high voltage electrical equipment, switchgear cabinets, auxiliary transformers, meters and communications equipment are located, including the Power Distribution Center (PDC) (see below), and one or two Main Step Up Transformers (also referred to as the Battery Step Up Transformer (BSU) or Generator Step Up Transformer (GSU)) which steps up the medium voltage from the inverter-transformer to the high voltage level of the transmission system, where it is then interconnected with the CAISO electric grid at the Point of Interconnect (POI) via the Project generation tie-line. The Project POI is a bay position at the PG&E 115-kV Lakeville substation.

Power Distribution Center: The Project will include one or more PDC enclosures to house and protect critical low and medium voltage electrical, life-safety, communications, and command equipment. Typically, the PDC is located near the Main Step-Up Transformer within the on-site substation area.

O&M Office and Storage Enclosure: The Project will install one or two modular enclosures on the Project site that will be utilized as an office space, restroom and for tool and equipment storage. These modular enclosures are typically between 20 feet and 40 feet long, by 8 feet to 10 feet wide, by 10 feet to 20 feet tall. These enclosures will support operations and maintenance personnel that will visit the site periodically.

Generation Tie-Line: An approximately 0.5-mile, above ground high-voltage (115kV) generation tie line and fiber optic cables will be constructed from the on-site Project Substation, head southwest on the Property just west of and parallel to the existing PG&E 230kV transmission lines located on the Property, then across Old Adobe Road and onto PG&E's Lakeville Substation property and to the Project's POI. Routing will include areas inside PG&E's property as part of the utility substation upgrades that will be required to accommodate the Project. The entirety of this line will be located on the Project Site, the Property and within the existing PG&E Lakeville substation property except for the portion crossing roughly perpendicular to Old Adobe Road. A crossing easement and permit will be obtained for the municipality to cross Old Adobe Road. The Project will also secure approvals to cross any other utility rights of way. Since precise routing within the PG&E property is unknown at this time, a study area has been included within this area for permitting purposes.

Fire and Thermal Runaway Safety Equipment and Design Features: The facility will be designed and equipped with UL-compliant operation energy and safety management equipment, and integrated fire protection systems designed to manage and prevent the risk of fire or thermal runaway events. In the unlikely situation that a fire event does occur, the facility equipment, systems and operational procedures are designed so that such an event does not propagate to surrounding batteries, cabinets or neighboring areas.

The Project will comply with all county and State codes and regulations related to health, fire and safety. Specifically, the Project will be required to comply with Chapter 1206 of the California Fire Code in effect at the time of receipt of construction permits. Chapter 1206 of the California Fire Code applies to Stationary Electric Energy Storage Systems (ESS) and addresses development standards for design, installation, commission, operation, maintenance and decommissioning of these systems, including fire and safety equipment requirements to be approved by the fire code officials having jurisdiction over the Project with established performance standards for approval; equipment and system fire testing in accordance with nationally-adopted UL standards, stringent standards for commissioning, operation and maintenance, on-going inspection and testing, decommissioning, seismic and structural design, signage, security installations, fire detection and suppression systems, vegetation control and minimum setbacks from lot lines, roads, and adjacent buildings. Compliance with these advanced, nationally adopted standards are designed to ensure the site installation and operation of battery storage systems for operators, first responders and neighboring community are safe. As a result of the implementation of these advanced standards, today BESS projects operate safely and efficiently throughout the state.

The Applicant has introduced the Project to, and initiated design consultation with the Rancho Adobe Fire Protection District (RAFD), the fire authority having jurisdiction (FAHJ) over the Project. RAFG Battalion Chief Andy Taylor has indicated that there are multiple fire stations near the Project site, which include RAFD, Petaluma Fire District, and Cal-Fire stations. According to Chief Taylor, the Project site would likely be serviced by the RAFPD Station 91-2, located at 11000 Main Street, Penngrove California 94951, RAFPD Station 91-3, located at 99 Liberty Road, and Petaluma Fire Department Station 3. Petaluma Fire Department's Station 3, located at South McDowell Blvd in Petaluma, is the closest station to the Project site, approximately three miles from the Project site.

Site Security: The Project site will also include an interior perimeter access route within the fenced interior of the Project facilities. The site access route, interior roads, gates and other security features will be fully compliant with all local and state building codes for fire and emergency response.

Wall and Landscaping: The Project will employ a combination of drought-tolerant, native landscaping, earthen berms and an 8- to 12-foot-tall concrete masonry unit (CMU), composite or similar wall with a stone façade finish and chain link fence pursuant to a landscaping plan submitted as part of the CUP application.

Other Site Design Features: The Project will include other design features to ensure safety and efficiency as well as compliance with all building, fire, and health and safety regulations, including above- and below-ground electrical duct banks; electrical systems, meters, communications systems, and security systems; yard lighting; fencing and walls; and fire-operations and maintenance access roads within the interior of the facility. Appropriate set-backs and separation between equipment and other features will be accounted for in the overall Project design.

Stormwater Drainage: An engineered stormwater drainage system will be constructed on the Project site to reroute off-site flows from the adjacent farm fields around the Project and to collect on-site stormwater flows. The stormwater drainage system will include drainage swales and a stormwater retention basin near the southeast corner of the site, where the majority of stormwater currently exits the area. Due to the nature of the Project, increased runoff is anticipated during design storm events. Increases in stormwater will be detained in the proposed basin to maintain or reduce the flow rate exiting the site at the existing discharge point. The stormwater drainage system will comply with all local requirements.

Lighting: Security and safety lighting will be incorporated into the Project Site Plan. On-site lighting will only be turned on for security, emergency and maintenance purposes and the Project site will not be lighted during normal operations. The lights will be shielded and directed downward per local building code requirements. Should nighttime maintenance activities be required, maintenance personnel will bring temporary, portable maintenance lighting as needed to the specific area under maintenance.

Sewer/Septic Service: The Project plans to include an on-site office and storage enclosure that includes a restroom and potable water supply. Sanitary sewer service may be secured from the municipal sewer service lines located in Old Adobe Road, a new onsite leach field, or holding tanks from which the waste will be periodically pumped and trucked off-site by a licensed septic pumping service. Final design of the sewer, leach field, or tank sewer system will be approved during the building permit process.

Water Service: The Project will source its irrigation, emergency fire water and/or domestic water supply from existing on-site wells. Alternatively, or in combination with on-site well water use, the Project may secure municipal, domestic and/or treated, reclaimed water supply from the City of Petaluma. The Project anticipates that it will need approximately one (1) acre-foot of water per year for its needs, where the vast majority of the Project's 1 acre-foot per year needs are associated with landscaping irrigation. The Project has initiated discussions with the City of Petaluma Public Works and Utilities Department for domestic water supply that may be accessed from an

existing water supply line located in Old Adobe Road, already servicing the Property. The Project has also initiated discussions with the City of Petaluma Public Works and Utilities Department regarding reclaimed water supply from the City's Reclaimed Water Program. Under this Program, the City of Petaluma has approved and is extending their existing reclaimed water supply lines to Old Adobe Road and the Property, where the Project parcel is already approved in the Reclaimed Water Program service territory. The Project has initiated discussions with the RAFD, the FAHJ over the Project, regarding fire water design requirements, that may include one or more of the sources described above and the elements below. One or more tanks will be erected adjacent to the site entrance or near the Project boundaries for fire water supply and/or irrigation use. If City of Petaluma domestic water supply is used, one or more new fire hydrants may be installed to support the Project as well. Final design requirements will be approved through coordination with the City (for supply) the County (permit approvals) and the RAFD based on available supply options. Potable water for drinking and/or hand washing will be supplied either via the municipal water system or on-site storage.

Site Access and Traffic: The southernmost approximately 1,000 feet of the existing two-lane farm access road from Old Adobe Road to the proposed Project site entrance will be improved to two separate one-way 12-foot-wide gravel roads for operations and emergency vehicle access, combined with an approximately 300-foot-long 24-foot-wide new access route linking the Project site to the existing farm road. The existing portion of this access road will be shared with the farm operations during operations of the Project. A new automatic gate will be installed at the access road intersection of Old Adobe Road for the joint use of Green String Farms and the Project. A second automatic gate will be installed at the Project site entrance that will prevent unauthorized personnel from entering the Project site. In addition, the Project's temporary laydown and parking area (further described below) will be used as a secondary construction access route so that construction traffic does not interfere with ongoing farming operations. The construction access route will be returned to its original farming condition after construction. The Project's primary access road will comply with applicable local and county regulations in order to provide all-weather access to operational, fire department, and emergency vehicles.

Construction of the Project will generate additional traffic in the surrounding area. Construction traffic relates to the traffic generated from construction vehicles, which consist primarily of heavy-duty trucks, smaller vendor trucks, and worker vehicles. Construction activities will include clearing and grubbing, grading, earthwork, trenching and facility equipment installation.

Once construction has been completed, the Project will operate 24 hours per day/seven days per week. It will be un-staffed during normal operations. It is estimated that maintenance will include two to four staff performing maintenance visits bi-weekly. During maintenance, crews will circulate amongst the equipment within the site and will require a small onsite operations office and storage enclosure equipped with restroom facilities. The Project will not require specific parking stalls since there are no occupied structures on the site and the facility will be closed to the public. As such, the Project will generate virtually no traffic upon construction completion.

Temporary Laydown and Parking Area: One temporary laydown area will be located on the Property, consisting of approximately 3 acres adjacent to the gen-tie line, for construction management facilities (i.e., office trailers), materials and equipment storage, worker parking, and for secondary construction access to the facility site. Vehicle parking, equipment laydown, and vehicle access routes will be clearly marked and limited to areas away from sensitive cultural resources and/or habitat. Upon completion of construction, the laydown and parking area will be removed and restored to pre-project conditions.

**Table 1: Approximate Project Equipment Details**

<b>Equipment</b>	<b>Description</b>	<b>Number of Units/Size of Footprint in Acres</b>	<b>Height</b>
Battery Enclosures	Integrated battery, battery controls and ancillary equipment with HVAC.	Contained within the approximately 10-acre BESS site and meeting lot coverage requirements	Up to 20 feet
PCS Equipment (Inverters and Transformers)	PCS inverters and LV-MV Transformer skid	Contained within the approximately 10-acre BESS site and meeting lot coverage requirements	Approximately 10 feet
PDC	Power Distribution Center - substation controls building	1 to 2; contained within the approximately 1-acre project substation area and meeting lot coverage requirements	Approximately 20 feet
Modular Office & Equipment Storage Enclosures	Modular enclosures for equipment/tool storage and office/restroom use by visiting O&M personnel.	One or two 40' x 10' modular enclosures	Approximately 20 feet
Fire Hydrant(s) and/or Water Tanks	Above ground water storage tanks for fire water use and/or irrigation for landscaping.	1 to 5 tanks contained within Project site, with a total volume of up to 30,000 gallons	Up to 10 feet
MPT (aka GSU)	Main power high voltage transformer	1 to 2 MPT; contained within the approximately 1-acre project substation area and meeting lot coverage requirements	MPT up to 30 feet; up to 6 static masts (lightning rods) up to 100 feet
Auxiliary Transformers	MV-LV Auxiliary Transformers for equipment back-feed power	Up to 10; contained within the approximately 10-acre BESS site and meeting lot coverage requirements	Approximately 10 feet
Transmission Towers/Poles	Steel monopole or wood pole electrical transmission towers/poles	Approximately 10, depending on interconnection conditions	Approximately 100 feet depending on interconnection and line crossing conditions
Other lighting, electrical, safety, communications, and security equipment	Various		Switchgear cabinets and power distribution panels up to 10 feet; junction boxes and telephony equipment up to 8 feet
Perimeter Site Security Wall/Fence	An 8-to-12-foot concrete masonry unit, composite or similar perimeter wall with noise attenuation features and/or chain link fence and a single project gate surrounding the BESS site and project substation.	Approximately 2,600 linear feet	8-12 Feet

**PROJECT SCHEDULE**

The proposed construction schedule is 12 months and this duration is required to conduct grading activities, install facility equipment, and interconnect to the PG&E Lakeville Substation. Seasonal constraints are not anticipated to preclude construction from occurring in accordance with this schedule (see Table 2). Construction activities will occur in a manner consistent with county requirements for work days and hours.

**Table 2. Construction Schedule**

<b>Timeframe</b>	<b>Construction Activity</b>
Month 1	Commence Grading Activities
Months 2-11	BESS Equipment Construction (trenching, foundations, etc.)
Months 3-11	Installation of Equipment and Commercial Delivery
Month 12	Reclamation Complete

**PROJECT CONSTRUCTION**

Project construction includes site preparation, laydown, and grading; installation of drainage swales and a drainage detention basin; installation of concrete foundations/supports and/or driven pile foundations; setting battery enclosures; underground trenching for electrical cable and telecommunications, wiring and electrical system installation including grounding; assembly of the accessory components including inverter transformers and generation step-up transformers; installation of HVAC equipment; and substation and gen-tie installation for connection to utility substation. Municipal water service may be extended to the Project for fire protection, landscape irrigation and/or domestic use and municipal sanitary sewer service may be extended to the Project for the O&M office enclosure.

The Project is expected to require approximately 50,000 cubic yards (cy) of earthwork including up to 15,000 cy of imported engineered materials (primarily aggregates). Required fill will be trucked to the site from a source determined by the construction contractor and it is expected to be located within 50 miles of the Project.

Raw materials required for construction will include gravel for onsite roads; concrete, sand, and cement for foundations; and water for concrete, dust control, and erosion controls. The anticipated work force and heavy equipment listed in Table 3 will be used during construction activities; the equipment listed primarily runs on diesel fuel.

**Table 3: Construction Workforce and Equipment Required for a Typical Battery Storage Facility**

<b>Construction Activity</b>	<b>Workforce</b>	<b>Typical Construction Equipment</b>
Office Staff / Management	5	Pickup trucks and small vehicles
Grading, foundations, and/or driven piles and underground electrical work	12	Dozer, grader, excavator or drill rig, crane, concrete pump trucks, concrete trucks, pickup trucks with trailers, all terrain forklifts, water trucks, dump trucks, compactors, generators, welders, pile drivers
Fence and Wall Construction	10	Forklift, backhoe, pickup trucks
Roads/Pad Construction	12	Dozer, grader, front end loaders, compactor, roller, pickup trucks, water trucks, dump trucks, compactors, scrapers

Battery Placement	10	Crane, forklift, pickup trucks
Laborers	30	Pickup trucks
Owner Representatives	5	Pickup trucks
Battery Supplier	30	Pickup trucks
Total Number of Workers*	114	
*It should be noted that the total number of workers provided is through project construction. It is expected that on average there will be 40-50 workers on site with a peak daily work force of approximately 60-80.		

The sequence of construction activities for the BESS facility will generally occur as follows:

1. Equipment staging and mobilization
2. Site preparation and mass grading and compaction
3. Trenching for electrical cables, wires and conduits
4. Install below-ground conduit banks and conduit and backfill of trenching
5. Earthwork preparation of equipment foundations
6. Pour-in-place concrete footings, pad foundations, and/or piers and install driven pilings
7. Foundation backfill and site compaction (as necessary)
8. Install PCS, power distribution systems, BESS, and pad-mounted transformers
9. Pull cables and connect equipment
10. Install above-ground utilities
11. Placement of finished surface material
12. Install safety features, permanent fencing and security lighting
13. Commissioning

In addition, the installation of a project substation and gen-tie to the adjacent utility substation will occur and overlap with the above activities. This activity will include installation of power poles and stringing of electrical wire/cable, installation of main power transformer, circuit breakers, lightning protection static mast, grounding, and installation of control house.

## **OPERATIONS AND MAINTENANCE**

The Project will be operated and monitored 24 hours per day/seven days per week from an offsite control center. Operating staff, typically in crews of two to four staff members, are expected to visit the site bi-weekly and as needed for project maintenance. During maintenance, crews will circulate amongst the equipment within the site and will not require specific parking locations since there are no occupied structures on the site and the facility site will be closed to the general public.

In addition to regularly scheduled maintenance and as part of Project operations, augmentation of batteries and battery enclosures will be required during the life of the Project. Depending on technology selection, augmentation could include replacement of batteries within enclosures and/or the phased installation of additional BESS enclosures throughout the life of the Project, beyond what will be installed during initial construction (or the “beginning of life”). In this sense, the CUP would be recognized as having a phased component. In order to fully analyze potential impacts from the Project, all possible battery enclosures that would be constructed and operated through the life of the BESS facility will be included in the Project’s planning and impact assessments.

## **DECOMMISSIONING**

At the end of the Project's useful life, it will either be replaced with a new energy storage technology or decommissioned. Decommissioning will involve the removal and recycling of facility equipment from the site and restoration to pre-Project conditions.

**Appendix A.**

**Borealis Energy Storage Project and its Consistency with the Sonoma Mountain Area Plan's Policy Regarding the  
Petaluma Adobe Historic State Landmark**



## **Borealis Energy Storage Project and its Consistency with the Sonoma Mountain Area Plan's Policy Regarding the Petaluma Adobe Historic State Landmark**

This memorandum addresses why Terra-Gen's proposed Borealis Energy Storage Project ("Project") is consistent with policy in the Sonoma Mountain Area Plan ("Area Plan") concerning maintaining the integrity of the Petaluma Adobe California Historic Landmark ("Landmark"). This analysis concludes that the Project is consistent with the Area Plan because the Project would have no adverse impact on the Landmark as a cultural resource. Specifically, the Project would not be visible or audible from any part of the Landmark due to the fact that the Project is more than 800 feet from the Landmark, and a thick vegetative screen along Adobe Creek, located to the north and east of the Landmark, separates the Project from the Landmark. The area immediately to west and southwest of the Landmark, which is predominantly visible from the Landmark, is open grazing land as identified in the Area Plan. The Project is consistent with the policy that the immediate vicinity of the Landmark should be recognized as sensitive to the integrity of the monument.

The proposed Project is located within the Area Plan area, adjacent to the Pelaluma Adobe Historic State Park ("Park"), and approximately 800 feet from the Landmark.<sup>1</sup> The Area Plan contains the following policy regarding the Landmark as excerpted below<sup>2</sup>:

### **Historic Sites**

The Petaluma Adobe Historic Monument is the only designated historic site within the Sonoma Mountain Plan area. The State Park is surrounded by 50 acres of open grazing land to preserve the view and atmosphere of the Petaluma Adobe similar to what it once was. The immediate vicinity of this site should be recognized as sensitive to the integrity of the monument.<sup>3</sup>

A map of the Park is reproduced below from its California State Parks Department website at <https://www.parks.ca.gov/pages/474/files/PetalumaAdobeSHPFinalWebLayout110915.pdf>

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<sup>1</sup> The Area Plan refers to the Landmark as a "Historic Monument." The Area Plan's use of the term "monument" appears to use an older nomenclature as California no longer designates historic "monuments" and the Landmark is not a National Monument. The Landmark is designated as one California's 1114 State Historical Landmarks.

<sup>2</sup> See Sonoma Mountain Area Plan, p. 19.

**FIGURE 1: California State Park's Map of the Petaluma Adobe State Historic Park**



## Background

The Petaluma Adobe building and its surrounding 5-acre parcel are historically preserved and designated as a [California Historic Landmark](#) and [National Historic Landmark](#). As shown in Figures 1 and 2, the Landmark is surrounded by the 44-acre Petaluma State Historic Park that is comprised of four parcels.

- APN # 017-130-002, an approximately 5-acre parcel that, along with the Petaluma Adobe building, was nominated in 1951 as a State Historical Landmark.
- APN # 017-130-004, an approximately 23-acre parcel located to the north and east of the Landmark, that serves as an entrance and supporting infrastructure for the Park and Landmark. This parcel contains paved roads, parking lots, restrooms and entrance building, and a caretaker's residence. Adobe Creek runs through this parcel, providing riparian vegetation that serves as a visual, physical and noise buffer for the Landmark to the east and north.
- APN # 117-140-009, an undeveloped 10-acre parcel located east of Casa Grande Road, across from Old Adobe Road and south of the Landmark. This parcel is adjacent to the Adobe Golf Course.
- APN # 017-130-007, a 5.5-acre parcel located southwest of the Landmark, across Old Adobe Road, where the California State Parks Bay Area District Office was constructed in the late 2000s.

The Petaluma Adobe is a historic ranch building built in 1836 by Mariano Guadalupe Vallejo. The Petaluma Adobe is a large, well-preserved, two-story building consisting of living quarters, storerooms,

and workshops surrounding an open courtyard of roughly 200 feet × 145 feet (61 m × 44 m). It was a part of a much larger former private ranching operation, which at one time comprised 67,000 acres.

The Landmark is located immediately adjacent to Old Adobe Road, a busy two-lane arterial. To the west and south of the Landmark, and within the viewshed of the Landmark, are approximately 150 acres of open grazing land and Park property. This open grazing land, along with the Adobe Creek riparian corridor, preserves the view and atmosphere of the Landmark similar to what it once was, as contemplated in the Area Plan.

The land directly to the north and east of the Landmark is comprised of 23 acres of Park property (APN # 017-130-004). Within this 23-acre parcel is Adobe Creek, located immediately east of the Landmark, running approximately north to south through the Park. A riparian corridor along Adobe Creek forms a thick vegetative screen between the Landmark and the east side of the Park, visually and physically separating the Landmark from park infrastructure and properties further to the east, including the Project site. See Photo 1 below, looking northeast from the veranda of the historic adobe building in the direction of the proposed Project site. The area of the Park within the 23-acre parcel that is located north and east of Adobe Creek has not been historically preserved and contains an entrance building, picnic tables, trash receptacles, restrooms, a caretaker's home and a parking lot.

**Photo 1: View from second story of the Petaluma Adobe building looking northeast toward the proposed Project**



Located adjacent to this 23-acre Park parcel, to the north and east, is the 137-acre Green Strings Farm. Green Strings Farm is currently cultivated with row crops, and it is also the proposed location for the Project. Green Strings Farm, and the proposed Project site, is not visible from the historic Landmark due to the intervening vegetative corridor of Adobe Creek that is shown from the second floor of the Petaluma Adobe building in Photo 1.

The proposed Project site is located adjacent the 23-acre parcel along the Park's northeastern boundary (See Figure 2 below). While not visible from the Landmark, the Project will be partially visible from some areas of the Park. Consistent with an approved landscaping plan, the Project will incorporate a boundary wall to provide a visual buffer between Project and the Park. The wall will be located behind existing vegetation and plantings of additional native vegetation that will result in the wall being integrated with the existing visual landscape and only sporadically visible through this vegetative screening.

Across Old Adobe Road to the southeast of the Landmark and the Park is the 45-acre Lakeview Substation, owned and operated by PG&E.

**FIGURE 2: The Petaluma Adobe State Historic Landmark, Park and Vicinity**



### **No Visual or Physical Impacts of the Project on the Landmark**

As described above, the Landmark is surrounded by Park property and a dense riparian corridor that completely obscures views of the Project from the Landmark. Since the Project would not be visible from the Landmark, there would be no change to its historic integrity of its view and atmosphere as contemplated in the Area Plan. Furthermore, the Landmark's viewshed and atmosphere are protected by other park properties and by privately-owned open grazing land that is consistent with the Area Plan.

While the Project will not be visible from the Landmark, Project elements will be screened from other areas of the Park with existing vegetation, a wall and project-installed native vegetation consistent with the Project's landscaping plan and would be compatible with other non-historic features (e.g, parking

areas, picnic tables, restrooms and entrance building, and a care-taker's residence) located within the Park, between the Project and the Landmark.

### **No Noise Impacts on the Landmark**

An acoustical assessment of the Project on the Landmark is attached here as Appendix A. The assessment concludes that noise from the Project will have no significant audible impacts to the Landmark and would meet the County's noise limits on all portions of the Park. The assessment also addresses existing noise conditions and identifies that the Landmark and Park are impacted primarily by traffic noise from the adjacent Adobe Road.

### **Conclusion**

The Project is consistent with the Sonoma Mountain Area Plan and no amendment is required. Specifically, the Project would not be visible or audible from the Landmark. The Project is more than 800 feet from any portion of the Landmark and is visually screened from by a dense vegetative cover along Adobe Creek. The Project is consistent with the policy in the Area Plan to treat the immediate area surrounding the Landmark as sensitive to the integrity of the Landmark.

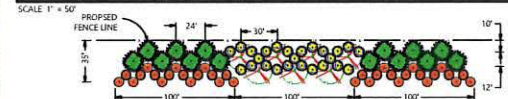
## **Preliminary Landscaping Plan**



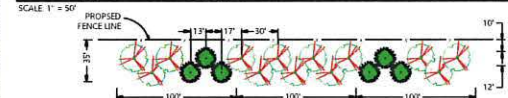
**LEGEND:**

- PROJECT BOUNDARY
- EX TREELINE
- EX MAJOR CONTOUR LINE
- EX MINOR CONTOUR LINE
- PROP MAJOR CONTOUR LINE
- PROP MINOR CONTOUR LINE
- PROP OVHD TRANSMISSION
- PROP SETBACK BUFFER FROM TREELINE
- PROP SUBSTATION/SWITCHYARD
- PROPOSED DETENTION BASIN
- PROP ACCESS ROAD
- PROP SECURITY FENCE

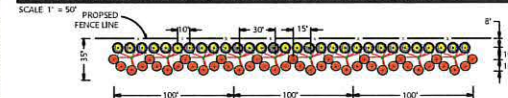
**Buffer Type 1: High Visibility Buffer**



**Buffer Type 2: Alternating Tree Buffer**



**Buffer Type 3: Overstory Trees with Alternating Shrubs**



**Water Budget Calculations**

PROJECT SERVICED BY POTABLE WATER SOURCES  
 MAXIMUM APPLIED WATER ALLOWANCE (EAWW)  
 EAWW: 89 GALLONS = (ET)0.62(UPF) + (HA)(R) + (SLA)

ETD: 43.9  
 LA: 59,778.5 SF  
 SLA: 9.5F

EAWW: 813,518.80 Gal

ESTIMATED ANNUAL WATER USE (EAWU)  
 EAWU: 89 GALLONS = (ET)0.62(UPF) + (HA)(R) + (SLA)

ETD: 43.9  
 PE: 0.1 (VERY LOW)  
 HA: 73,857 SF  
 IE: 0.71  
 SLA: 9.5F

EAWU Sub-Total: 212,282.73 Gal

ESTIMATED ANNUAL WATER USE (EAWU)  
 EAWU: 89 GALLONS = (ET)0.62(UPF) + (HA)(R) + (SLA)

ETD: 43.9  
 PE: 0.2 (LOW)  
 HA: 4,800 SF  
 IE: 0.71  
 SLA: 9.5F

EAWU Sub-Total: 33,734.99 Gal

OVERALL ESTIMATED ANNUAL WATER USE (EAWU)  
 OVERALL EAWU: 89 GALLONS = (ET)0.62(UPF) + (HA)(R) + (SLA) + (EAWU Sub-Total) + (EAWU Sub-Total) (8)

OVERALL EAWU Total: 289,444.38 Gal

**NOTES**

1. I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLAN.
2. ALL PLANTING AREAS ARE TO HAVE A MINIMUM OF 1" SHREDED HARDWOOD MULCH.
3. ALL SPECIES WERE SELECTED TO REQUIRE LOW WATER NEEDS IN WUCOLS IV REGION I, SUNSET ZONE 14.

Phone: (916) 331-4100 10121 Church Ranch Way, Suite 4010  
 Tallinn, (916) 913-1100 Westwood, CA 94091  
 westwood@westwood.com  
 Westwood Professional Services, Inc.

PREPARED FOR:

REVISED:

DATE:

SHEET:



**Borealis Battery Energy Storage Project**  
 Sonoma County, California

Preliminary Landscape Plan

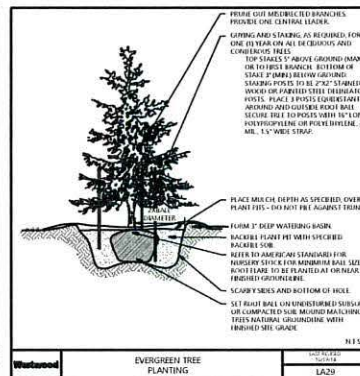
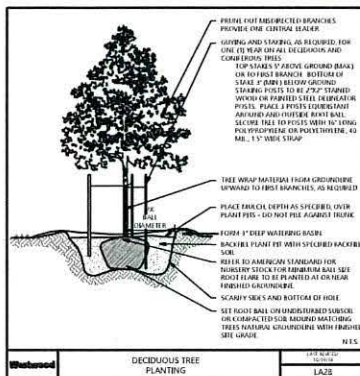
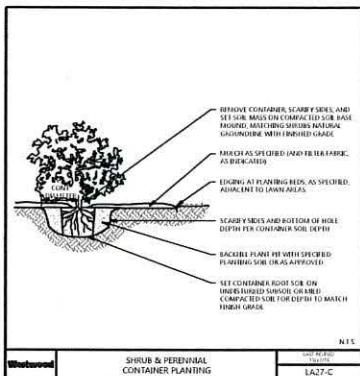
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DATE: 09/13/2022  
 SHEET: L100

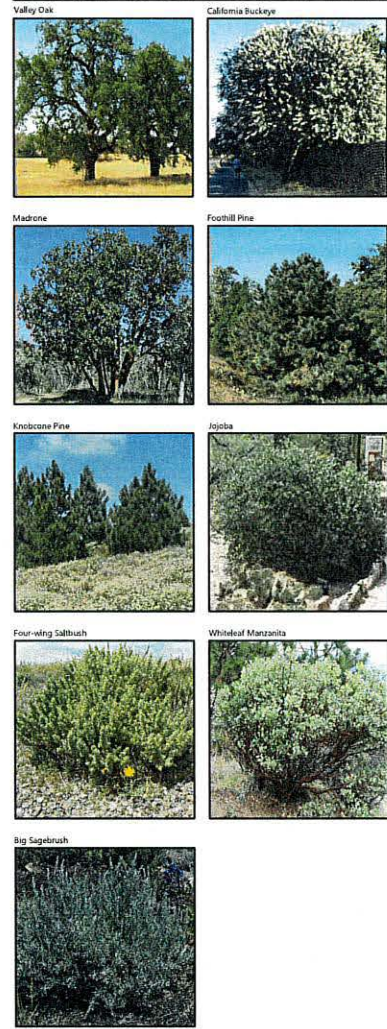
**BUFFER & SCREENING PLANT SPECIES LIST**

SYMBOL	CODE	QTY	COMMON/BOTANICAL NAME	WUCOLS IV CLIMATE ZONE	SIZE (AT INSTALL)	SPACING O.C.	MATURE SIZE	WUCOLSA WATER USE CLASSIFICATION
OVERSTORY TREE	VOK	61	Valley Oak / Quercus lobata	1	2" BB	AS SHOWN	H 50'-70' W 30'-50'	VERY LOW
	CAB	15	California Buckeye / Aesculus californica	1	2" BB	AS SHOWN	H 15'-40' W 15'-40'	VERY LOW
	MAD	11	Madrone / Arbutus menziesii	1	2" BB	AS SHOWN	H 20'-80' W 15'-40'	LOW
CONIFER TREE	KNP	14	Knobcone Pine / Pinus attenuata	1	6" H1	AS SHOWN	H 20'-80' W 20'-25'	VERY LOW
	FOP	20	Footwall Pine / Pinus salmiana	1	6" H1	AS SHOWN	H 40'-70' W 30'-50'	VERY LOW
DECIDUOUS SHRUBS	FBB	89	Four-wing Saltbush / Atriplex canescens	1	4S CONT	8" O.C.	H 2'-8" W 4'-8"	VERY LOW
	BA	34	Yucca / Yucca filamentosa	1	4S CONT	8" O.C.	H 3'-8" W 3'-8"	VERY LOW
	WMH	82	Whitetail Manzanita / Arctostaphylos wsooda	1	4S CONT	8" O.C.	H 3'-12" W 3'-8"	VERY LOW
	BSB	101	Big Sagebrush / Artemisia tridentata	1	4S CONT	8" O.C.	H 3'-8" W 4'-8"	VERY LOW

NOTES: 1) QUANTITIES ON PLAN SUPERSEDE LIST QUANTITIES IN THE EVENT OF A DISCREPANCY. 2) B.B. SPECIES ROOT TYPE AS BALLED AND BURLAPPED. 3) H1 SPECIES MINIMUM SPECIMEN HEIGHT UPON INSTALLATION. 4) 4S CONT TO MEET MINIMUM SIZE REQUIREMENT OF 24" OR 30" W FOR DECIDUOUS SHRUBS UPON INSTALLATION IF PLANT SIZE UNAVAILABLE AT 4S CONT. UP-SIZE CONTAINER UNTIL MINIMUM PLANT SIZE REQUIREMENT IS MET. 5) VALLEY OAKS SHALL COMPREHE A MINIMUM OF FIFTY PERCENT (50%) OF THE REQUIRED LANDSCAPE TREES FOR THE DEVELOPMENT PROJECT (S 26-67-340).



**BUFFER & SCREENING PLANT MATERIAL**



**BATTERY STORAGE - SCREENING REQUIREMENTS**

- CONTRACTOR SHALL CONTACT CALIFORNIA USA NORTH (811 DIG SAFE SYSTEM (811) OR (800-842-2444) TO VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY PLANTS OR LANDSCAPE MATERIAL.
- ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO FIELD AND SITE CONDITIONS.
- NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
- ALL SUBSTITUTIONS MUST BE APPROVED BY THE OWNER PRIOR TO SUBMISSION OF ANY BID AND/OR QUOTE BY THE LANDSCAPE CONTRACTOR.
- CONTRACTOR SHALL PROVIDE ONE YEAR GUARANTEE OF ALL PLANT MATERIALS. THE GUARANTEE BEGINS ON THE DATE OF THE OWNER'S WRITTEN ACCEPTANCE OF THE FINAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
- ALL PLANTS TO BE SPECIMEN GRADE, CALIFORNIA-GROWN AND/OR HARDY. SPECIMEN GRADE SHALL ADHERE TO, BUT IS NOT LIMITED BY, THE FOLLOWING STANDARDS:
  - ALL PLANTS SHALL BE FREE FROM DISEASE, INSETS, WOUNDS, SCARS, ETC.
  - ALL PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES.
  - ALL PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES.
  - ALL PLANTS SHALL HAVE HEAVY, HEALTHY BRANCHING AND LEAVING.
  - CONIFEROUS TREES SHALL HAVE AN ESTABLISHED MAIN LEADER AND A HEIGHT TO WIDTH RATIO OF NO LESS THAN 5:3.
- PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60 1-2004 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED.
- PLANTS TO BE INSTALLED AS PER CALIFORNIA AND STANDARD PLANTING PRACTICES.
- PLANTS SHALL BE IMMEDIATELY PLANTED UPON ARRIVAL AT SITE. PROPERLY HEEL-IN MATERIALS IF NECESSARY, TEMPORARY ONLY.
- PRIOR TO PLANTING, FIELD VERIFY THAT THE ROOT COLLAR/ROOT FLARE IS LOCATED AT THE TOP OF THE BALLED & BURLAP TREE. IF THIS IS NOT THE CASE, SOIL SHALL BE REMOVED DOWN TO THE ROOT COLLAR/ROOT FLARE. WHEN THE BALLED & BURLAP TREE IS PLANTED, THE ROOT COLLAR/ROOT FLARE SHALL BE EVEN OR SLIGHTLY ABOVE FINISHED GRADE.
- REMOVE POT ON POTTED PLANTS, SPLIT AND BREAK APART PEAT POTS.
- PRUNE PLANTS AS NECESSARY - PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
- THE NEED FOR SOIL AMENDMENTS SHALL BE DETERMINED UPON SITE SOIL CONDITIONS PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL NOTIFY OWNER FOR THE NEED OF ANY SOIL AMENDMENTS.
- BACKFILL SOIL AND TOPSOIL TO BE EXISTING TOP SOIL FROM SITE FREE OF ROOTS, ROCKS LARGER THAN ONE INCH SUBSOIL, DEBRIS, AND LARGE WEEDS UNLESS SPECIFIED OTHERWISE. MINIMUM 12" DEPTH TOPSOIL FOR TREE, SHRUBS, AND PERENNIALS.
- PROVIDE MULCH FOR ALL TREE AND SHRUB PLANTINGS PER DETAIL. MULCH TO BE SHREDDED HARDWOOD AND FREE OF DETERIORATED MATERIAL. MULCH 3" DIAMETER RING AROUND ALL TREES AND SHRUBS TO A DEPTH OF 4". KEEP MULCH OFF TRUNK.
- CONTRACTOR SHALL PROVIDE NECESSARY WATERING OF PLANT MATERIALS UNTIL THE PLANT IS FULLY ESTABLISHED OR IRRIGATION SYSTEM IS OPERATIONAL. OWNER WILL NOT PROVIDE WATER FOR CONTRACTOR.
- REPAIR, REPLACE OR PROVIDE SOD/SEED AS REQUIRED FOR ANY ROADWAY BOULEVARD AREAS ADJACENT TO THE SITE DISTURBED DURING CONSTRUCTION.
- REPAIR ALL DAMAGE TO PROPERTY FROM PLANTING OPERATIONS AT NO COST TO OWNER.

**Westwood**

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 westwood@westwood.com  
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PREPARED FOR:

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 11455 EL CAMINO REAL SUITE 160  
 SAN DIEGO, CA 92130

REVISIONS:


**Borealis Battery Energy Storage Project**  
 Sonoma County, California

Preliminary Landscape Plan

**NOT FOR CONSTRUCTION**

DATE: 09/13/2022  
 SHEET: L101